UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/364,967	07/31/1999	KEVIN J. KELLY	P-8035	1149

23322 7590 05/20/2004

IPLM GROUP, P.A.
POST OFFICE BOX 18455
MINNEAPOLIS, MN 55418

EXAMINER	
TSAI, CAROL S W	

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/364,967	KELLY ET AL.	
	Examiner	Art Unit	
	Carol S Tsai	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17 and 20* is/are allowed.

6)☒ Claim(s) *1-4,6-10,14-16,18,22-30 and 33-36* is/are rejected.

7)☒ Claim(s) *5,12,13,31,32 and 37-47* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6, 7, 9, 29, 30, 35, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 5,741,307 to Kroll.

With respect to claims 1, 3, 4, and 29, Kroll disclose a method of determining a remaining life of a power source having a voltage in an implantable medical device comprising the steps of: assessing voltage of the power source through an actual measurement (see col. 3, lines 26-31, lines 54-55, and lines 60-61; col. 5, lines 12-14; col. 8, lines 58-67; and col. 9, line 61 to col. 10, line 10); determining, based on voltage of the power source, capacity information of the power source (see Fig. 4 and col. 14, lines 29-38); obtaining a time that the power source has been operating through an actual measurement (see col. 3, lines 34-36; col. 4, lines 6-7 and lines 63-64; col. 5, lines 12-14; and col. 12, lines 65-66); and determining the remaining life of the power source based on the capacity information of the power source and the time that power source has been operating (see col. 9, line 37 to col. 10, line 58; col. 13, lines 1-42; and col. 14, line 20 to col. 15, line 19).

As to claim 2, Kroll also disclose utilizing an analog to digital (A/D) converter (A/D 30 shown on Fig. 1).

As to claim 6 and 7, Kroll also disclose determining the probable usage rate of the power source and dividing the determined remaining capacity by the probable usage rate of the power source (see Fig. 4).

As to claim 9, Kroll also disclose determining the used capacity of the power source since the last time the implantable medical device was reprogrammed (see col. 11, lines 26-41).

As to claim 30, Kroll also discloses a device for determining the current status and remaining life of a power source in an implantable neurological tissue stimulator, the device comprising: an implantable neurological tissue stimulator (implantable cardioverter-defibrillator (ICD) (not shown)), the implantable neurological tissue stimulator having: a source of power having a voltage (V_{BAT} 34 and V_{CAP} 36 shown on Fig. 1); a voltage determining system (voltage measuring means (not shown)) for determining the voltage of the source of power through an actual measurement(see col. 3, lines 26-31, lines 54-55, and lines 60-61; col. 5, lines 12-14; col. 8, lines 58-67; and col. 9, line 61 to col. 10, line 10); a programmer (external programmer 48 shown on Fig. 1) for creating and processing information to be sent to and received from the implantable neurological tissue stimulator, the programmer including a processor (controller 150 shown on Fig. 1) and a memory (memory 44 shown on Fig. 1) attached thereto; a system (telemetry circuit 46 shown on Fig. 1) for communicating information between the implantable neurological tissue stimulator and the programmer; wherein the voltage determining system passes the voltage of the source of power to the system for communication (see Fig. 1); and wherein the system for communication passes voltage of the source of power from the

implantable neurological tissue stimulator to the programmer and to the processor (Control logic and timing circuits 32 shown on Fig. 1), and wherein the processor determines, based on the voltage of the source of power, capacity information of the power source and determining life of the power source based on the capacity information of the power source and a time that the power source has been operating obtained through an actual measurement (see col. 3, lines 34-36; col. 4, lines 6-7 and lines 63-64; col. 5, lines 12-14; col. 12, lines 65-66; col. 9, line 37 to col. 10, line 58; col. 13, lines 1-42; and col. 14, line 20 to col. 15, line 19).

As to claims 35 and 36, Kroll also disclose the power source being a battery/capacitor (V_{BAT} 34 and V_{CAP} 36 shown on Fig. 1)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,741,307 to Kroll.

As to claims 8 and 10, Kroll discloses the determined used capacity of the power source and the length of time that the implantable medical device has been working (see col. 3, lines 34-36; col. 4, lines 6-7 and lines 63-64; col. 5, lines 12-14; and col. 12, lines 65-66).

Kroll does not disclose determining the probable usage rate of the power source including the step of dividing the determined used capacity of the power source by the length of time that the implantable medical device has been working.

The Examiner takes Official Notice that determining the probable usage rate of the power source including step of dividing one known value by another know value, is well known in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kroll's method to include the step of dividing one known value by another know value in order that the probable usage rate of the power source can be determined.

6. Claims 14-16, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroll in view of U. S. Patent No. 5,458,624 to Renirie et al.

As noted above, with respect to claims 14-16, 33, and 34, Kroll discloses the claimed invention, except for determining the power source capacity used and then subtracting this value from the total power source capacity.

Renirie et al. teach determining the power source capacity used and then subtracting this value from the total power source capacity (see col. 6, line 56 to col. 7, line 6)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kroll's method to include determining the power source capacity used and then subtracting this value from the total power source capacity, as taught by Renirie et al., in order to calculate projected nominal pacemaker end-of-life (EOL).

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kroll in view of U. S. Patent No. 5,744,931 to Arai et al.

As noted above, Kroll disclose the claimed invention, except calculating the remaining power source capacity/power source capacity used by using a non-linear formula.

Arai et al. teach calculating the remaining power source capacity/power source capacity used by using a non-linear formula (see col. 2, lines 10-16 and col. 3, lines 11-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kroll's method to include calculating the remaining power source capacity/power source capacity used by using a non-linear formula, as taught by Arai et al., in order to approximate the actual relationship between measured power source and remaining power source capacity for estimating an actual battery remaining capacity voltage.

8. Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroll in view of U. S. Patent No. 5,344,431 to Merritt et al.

As noted above, Kroll disclose the claimed invention, except for informing the user of the status of the power source.

Merritt et al. teach informing the user of the status of the power source (see col. 9, line 66 to col. 10, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kroll's method to include informing the user of where in the power source life the power source is, as taught by Merritt et al., in order to alert the patient that that the battery is almost exhausted.

As to claims 23 and 24, Kroll also disclose displaying a representation of the percentage of power source capacity used/remaining (see col. 8, lines 6-28).

9. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroll in view of Merritt et al. as applied to claims 1 and 22 above, and further in view of U. S. Patent No. 5,994,876 to Canny et al.

As noted above, with respect to claims 25-27, Kroll in combination with Merritt et al. teach all the features of the claimed invention, but do not disclose determining whether the remaining power source capacity falls within a predetermined limit; alerting the user if the remaining power source capacity falls within a predetermined limit; and alerting the user by trigger an alarm.

Canny et al. teach determining whether the remaining power source capacity falls within a predetermined limit (see col. 8, lines 20-26); alerting the user if the remaining power source capacity falls within a predetermined limit; and alerting the user by trigger an alarm (see col. 8, lines 26-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kroll in combination with Merritt et al.'s method to include steps of determining whether the remaining power source capacity falls within a predetermined limit; alerting the user if the remaining power source capacity falls within a predetermined limit; and alerting the user by trigger an alarm, as taught by Canny et al., in order to recharge the battery (Canny et al. col. 8, line 28).

As to claim 28, Kroll in combination with Merritt et al. do not disclose triggering an alarm chosen from the group consisting of audible or visual warnings.

Canny et al. teach triggering an alarm chosen from the group consisting of audible or visual warnings (see col. 8, lines 25-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kroll in combination with Merritt et al.'s method to include triggering an alarm chosen from the group consisting of audible or visual warnings, as taught by Canny et al., in order to recharge the battery (Canny et al. col. 8, line 28).

Allowable Subject Matter

10. Claims 5, 12, 13, 31, 32, and 37-47, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 17 and 20 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter:

U. S. Patent No. 5,344,431 to Merritt et al. is the reference closest to the claimed invention. Merritt et al. disclose a method of determining the current status and remaining life of a power source in an implantable neurological tissue stimulator comprising the steps of: assessing the power source voltage of the power source in an implantable neurological tissue stimulator; determining, based on the assessed power source voltage, where the power source is in its power source life cycle; and taking appropriate action in response to the determination of where the power source is in its power source life cycle. However, Merritt et al. do not teach

calculating the remaining power source capacity by using a formula of the form: Remaining Battery Capacity = a constant + a constant multiplied by the power source voltage determined in the step of assessing the power source voltage of the power source in an implantable neurological tissue stimulator; and including all of the other limitations in the respective independent claims.

Response to Arguments

13. Applicant's arguments with respect to claims 1-4, 6-10, 14-16, 18, 22-30, and 33-36, have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. W. Tsai whose telephone number is (571) 272-2224. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax number for TC 2800 is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (571) 272-1585 or (571) 272-2800.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

Carol S. W. Tsai

05/11/04